CS225 Final Project Goal

Openflights: Find preferred (shortest) route between two recorded airports with possible routes given.

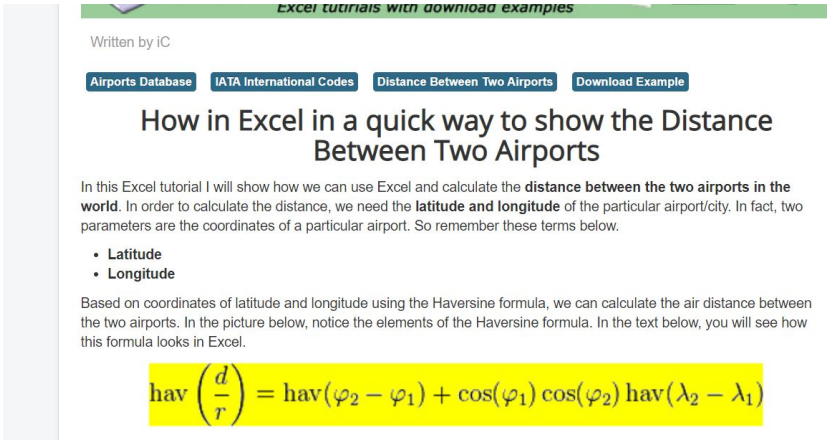
General Dataset: https://openflights.org/data.html

Specific Data that we are using:

Airports Data: https://raw.githubusercontent.com/jpatokal/openflights/master/data/airports.dat
Routes Data: https://raw.githubusercontent.com/jpatokal/openflights/master/data/routes.dat

Airports data is of the format **Airport ID, Name, City, Country, IATA, ICAO, Latitude, Longitude, Altitude, Timezone, DST, Tz database time zone, Type, Source.**
Routes data is of the format **Airline, Airline ID, Source airport, Source airport ID, Codeshare, Stops, Equipment.**

Workflow:

1. Read data into favorable data structure
2. Distance between geographical distance
   a. 

   http://www.ic-ims.com/excel-examples-4/calculate-and-display-distance-between-two-airports.html
3. Transfer data into directed graph
   a. Each node represents an airport

    b. Each route would connect two airport and it is not necessarily bi-directional
    c. We may need to print it out
4. Traversal
    a. BFS (Breadth First Search)
5. Dijkstra's Algorithm
    a. Using shortest possible distance between starting point and ending point as weighting method (including transfer flights)
6. Landmark Path
    a. Given a middle points as a stop, find the shortest path that passes through the point with a given starting and ending point.
7. Implementation of Algorithm
8. The final presentation